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ABSTRACT

This report presents the results of a pilot test by the Texas Water Quality Board (TWQB) of a manpower planning methodology developed by the U.S. Environmental Protection Agency (EPA), Office of Water Programs. Project outputs are described and illustrated in sections of the report dealing with work to be done, organizational staffing plan, transfers and new hires needed, training needs estimate and identification of manpower problems. Included are an analysis of the findings and an assessment of the costs and benefits of this type of effort. Recommendations for further action are presented. The appendices include many tables and figures. (CS)

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REPORT ON PILOT TEST OF STATE AGENCY MANPOWER PLANNING METHODOLOGY FOR THE TEXAS WATER QUALITY BOARD CONSTRUCTION GRANTS SECTION

ED150010

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TEXAS DEPARTMENT OF WATER RESOURCES
September 1977

SE 023 890

REPORT ON

PILOT TEST OF STATE AGENCY MANPOWER PLANNING METHODOLOGY

TEXAS WATER QUALITY BOARD
CONSTRUCTION GRANTS SECTION

AUGUST, 1977

Education and Training Section
Texas Water Quality Board

FOREWORD

Effective September 1, 1977, Texas' three water resources agencies, the Texas Water Rights Commission, the Texas Water Quality Board, and the Texas Water Development Board, were consolidated to form the Texas Department of Water Resources. A number of publications prepared under the auspices of the predecessor agencies are being published by the TDWR. To effect as little delay as possible in production of these publications, references to these predecessor agencies will not be altered except on their covers and title pages.

Charles E. Nemir
Acting Executive Director

The quantities and descriptions in this report do not represent final determinations of the Texas Water Quality Board and have not been reviewed by the U.S. Environmental Protection Agency. They should be considered as preliminary determinations which will be refined through further analyses and final review. These quantities and descriptions pertain specifically to the Texas Water Quality Board's construction grants program as being administered in June of 1977, and they should not be construed as being directly applicable to the grants programs in other states.

TABLE OF CONTENTS

		PAGE
I.	Introduction	1
II.	Methodology and Products	4
	Task 1 - Define Workloads	4
	Task 2 - Manpower Planning Criteria	5
	a - Function Definition	5
	b - Occupation Titles and Definitions	5
	c - Table of Time Factors	6
	d - Staffing Guide	7
	e - Career Ladder	7
	f - Organization Charts	7
	Task 3 - Personnel Inventory	8
	Task 4 - Forecast New Hires and Transfers	8
	a - Manpower Transition Analysis	8
	b - Analysis of Manpower Needs	9
	Task 5 - Develop Staffing Plan	9
	Task 6 - Training Catalog and Training Plan	9
	a - Training Catalog	9
	b - Training Plan	9
	Task 7 - Analysis of Manpower Problems	10
III.	Evaluation of Methodology	10
	A. Problems	10
	B. Time Required	12
IV.	Evaluation of Products	13
V.	Conclusions	13
VI.	Recommendations	15

APPENDICES

		PAGE
A	Definition of Workloads	16
B	Function Definition	21
C	Occupation Definitions	22
D	Activity Analysis	27
E	Table of Time Factors	34
F	Calculation Sheets ($200M)	41
G	Staffing Guide	45
H	Career Ladder	46
I	Organization Charts	47
J	Personnel Inventory	50
K	Manpower Transition Analysis	51
L	Analysis of Manpower Needs	53
M	Staffing Plan	54
N	Training Catalog	58
O	Training Plan	62

I. Introduction

A. Background

This report presents the results of a pilot test by the Texas Water Quality Board (TWQB) of a manpower planning methodology developed by the U.S. Environmental Protection Agency (EPA) Office of Water Programs. The EPA effort is in response to the need for improved methods and techniques to determine manpower and training impacts on states and regional offices generated by shifts in environmental legislation, new technology, new regulations and the delegation of federal rules and responsibilities to the states. In the past a lack of adequate budgets and/or trained manpower has constrained the assumption of P.L. 92-500 program responsibilities by many state agencies. In other cases, manpower deficiencies have caused unsatisfactory state performance.

The TWQB, upon inquiry by the EPA, agreed to undertake the pilot test for its construction grants program because of its own recognition of the need for dealing with the manpower factors of this program. State legislation was anticipated and has been enacted which authorizes an expanded TWQB role in the municipal wastewater treatment facilities construction program. This legislation also authorizes the TWQB to obtain funding for its construction grant staff by using available monies provided for in the basic construction grant process. Also, the TWQB was aware of the EPA decentralization objectives and possibility of the federal government's increasing the level of funding available for the construction program and its administration.

Arrangements for the pilot test were made at meetings which were held in Austin in December, 1976 and February, 1977. Representatives of TWQB, EPA Region VI, and the Municipal Operations and Training Division of EPA Headquarters participated in these meetings. Agreement was reached as to the objectives, approach, and responsibilities of the pilot study. Three basic objectives were agreed upon:

(1) To assess and improve the EPA manpower planning methodology.

(2) To obtain guidance in determining the staffing and training needs of the TWQB to effectively manage its construction grants program.

(3) To obtain guidance in the development of a systematic and reliable approach which the TWQB could use for budget and planning purposes on an ongoing basis.

Essentially the following project outputs were specified:

(1) Work to be done

(2) Organizational staffing plan

(3) Transfers and new hires needed

(4) Training needs estimate

(5) Identification of manpower problems

The results of the pilot study, relative to these objectives, are described and illustrated in the following sections of this report.

B. Methodology

Describes the various tasks involved in the methodology, how they were accomplished, and the products they produced.

C. Evaluation of Methodology

Describes the problems encountered in the methodology, together with recommendations for improvement.

D. Evaluation of Products

Describes how TWQB management views the usefulness of the manpower planning tools and products produced by the methodology.

E. Conclusions

Provides an analysis of the above findings and presents an assessment of the costs and benefits of this type of effort.

F. Recommendations

Provides recommendations for further action on this matter by the TWQB and EPA.

Contributing to the above determinations were:

1. Principals:
   a. Tom Jackson, Manpower Planner (Education and Training Section, TWQB) - Provided direction to the project, coordinated development and completion of forms, and prepared the report.
   b. Harry Voigt, Chief, Grants Management (Construction Grants Section, TWQB) - Served as program representative. Made technical decisions concerning workloads and manpower requirements and utilization.
   c. Morton S. Ettelstein, Chief of the Manpower Planning Section (Municipal Operations and Training Division, Office of Water Programs, EPA) - Assisted in the design of project approach and solution of problems.

2. Other Participants:

a. TWQB Construction Grants Section Staff - Provided data, reviewed draft documents, and offered suggestions for improvement.

b. TWQB Management (Robert G. Fleming, Director of Central Operations Division; Milton Rose, Chief, Construction Grants Section) - Reviewed draft documents and offered suggestions for improvement. Approved final documents.

II. Methodology and Products

The approach essentially followed the EPA draft methodology. However, all the suggested steps were not followed nor were all the products produced. It was necessary to modify the suggested products and to add additional steps and products in order to meet the conditions of the TWQB construction grant program. The following is a description of the tasks accomplished and the products produced. Tasks were not accomplished in the indicated sequence. Some were done concurrently and some repeated as a result of subsequent determinations.

Task I - Define Workloads (Appendix A)

The workload of the program is related to the numbers, types, and sizes of construction projects. To quantify this, a workload structure was devised in terms of the step or type of project (planning, construction) and the size range of each step in terms of the cost. A method was developed to forecast the number of projects within each cost category of each step in the planning period (FY 78).

This method drew upon previous experience as to the mix of projects generated by different funding levels. The development of the method, project structure, and workload forecast are explained in Appendix A. As a $200 million funding level was anticipated for FY 78, this was agreed to be the workload level for completing the other tasks in this study.

Task 2 - Manpower Planning Criteria (Appendices B-I)

In line with suggestions in the EPA methodology, reference was made to the EPA Manpower Planning Criteria Manual in accomplishment of the steps involved in this task. However, the EPA criteria did not completely fit the TWQB situation and were significantly changed. The EPA criteria did provide a model for the criteria which were developed. Examples of the manpower planning criteria developed by the TWQB are included in the appendices of this report. The TWQB Manpower Planning Criteria Manual for the Construction Grants Section contains the complete body of criteria developed in this pilot study.

a. Function Definition (Appendix B)

   A function definition was completed which describes the scope and purposes of the TWQB's involvement in the construction grants program.

b. Occupation Titles and Definitions (Appendix C)

   The official TWQB position classifications are too broad for manpower planning purposes, and it was determined that functional titles and definitions should be developed. Drafts of a new position structure were developed by the manpower planner through analysis of merit system

classifications and the more detailed position postings and organizational plan of the construction grants section. Also, to obtain a more specific understanding of existing manpower utilization, an activity analysis was completed. Essentially, this involved relating the type and level of each staff member's activity to the completion of the specific tasks in each step of the construction grants process. (See the footnote to Appendix D for explanation). Subsequently, the new position titles and definitions were reviewed and adjusted by all levels of the construction grants program management. (Note that this as well as many of the other steps of this task were completed in combination with other tasks).

c. Table of Time Factors (Appendix E)

This follows the basic approach used by the EPA Construction Grants Division as discussed in the EPA Manpower Planning Criteria Manual. Drawing from the EPA Manual, TWQB construction grant managers and staff, especially the program representative and project engineers, developed a new list of tasks and estimates of the time required to accomplish the tasks. These estimates are based on the degree of the TWQB's involvement in the construction grants program as of the date of this report.

An allowance was formulated to provide for factors such as delays, personal matters, travel, and administrative activities. This is explained in the footnote to the table of time factors. A calculation sheet was designed

to forecast quantitative manpower requirements by using the table of time factors and the definition of workloads. This is contained in Appendix F.

d. Staffing Guide (Appendix G)

The staffing guide relates the numbers and types of workers with a defined level of workload. The funding level was selected as the "workload indicator" to quantify the workload level.

To provide a basis for determining the types of personnel required, the program representative determined the task times on the table of time factors which required engineer inputs. This was used to calculate the number of engineers required at the various funding levels. The mix of other personnel was judgmental drawing upon existing utilization practices and problems. The resulting staffing guides were reviewed by all levels of program management.

e. Career Ladder (Appendix H)

The career ladder was cooperatively developed by the program representative and manpower planner. It essentially represents the program managers judgment, based upon past experience, on the desirable and practical sources of recruitment and paths of advancement in the organization.

f. Organization Chart (Appendix I)

To illustrate the distribution of occupations in the program, it was decided to include an organization chart in the development of the manpower planning criteria.

Task 3 - Personnel Inventory (Appendix J)

A personnel inventory form was designed to relate existing personnel with the newly developed occupation definitions. The relation was in terms of current job assignments and qualifications for other occupations. This was completed by the program representative. It was subsequently reviewed by the program managers.

Task 4 - Forecast New Hires and Transfers (Appendices K-L)

a. Manpower Transition Analysis (Appendix K)

In this step, data is used from previous tasks.

1. In task 1 workload levels were defined for various funding levels.
2. In task 3, step d, a staffing guide was developed to translate the workload into the numbers and types of personnel required.
3. In task 3 an inventory of current personnel was completed.

The transition analysis form is the tool for synthesizing these inputs in the following manner. (See footnote 1 to Appendix K for an explanation of how to complete the transition analysis.)

1. The beginning of the year employment was obtained from the personnel inventory (Appendix J).
2. The end of year employment was obtained from the staffing guide for the $200 million funding level (Appendix G).
3. The number of transfers and separations occurring from the beginning to the end of the planning period (June, 1977 to September, 1978) was estimated by the program representative. This procedure followed the EPA methodology.

b. Analysis of Manpower Needs (Appendix L)

The determinations made in the transition analysis were summarized on this form by the manpower planner.

Task 5 - Develop Staffing Plan (Appendix M)

The staffing plan is intended to provide a management type document. It defines the specific positions with salary levels which are intended to be allocated to the construction grants section and the manyears anticipated to be worked. This provides firm data for budget planning. The number of manyears and positions differ because of the time required for recruitment and training. The staffing plan was developed by the manpower planner and program representative and subsequently reviewed and adjusted by line managers.

Task 6 - Training Catalog and Training Plan (Appendices N-O)

Examples of the training catalog are included in the appendices of this report. The TWQB Manpower Planning Criteria Manual for the Construction Grants Section contains the complete training catalog.

a. Training Catalog (Appendix N)

In conjunction with the development of the occupation definitions, specific training courses were associated with each occupation. The manpower planner first identified pertinent training courses through examination of training records. The resulting draft catalog was reviewed by construction grant staff members who made revisions on the basis of their knowledge of applicable courses.

b. Training Plan (Appendix O)

Using the training catalog and the "Analysis of Manpower

Needs" (Appendix L) the manpower planner and the program representative determined the specific courses that were required for the new hires and transfers. Also determined were the courses to be taken by personnel remaining in the same position from the beginning to the end of the planning period (FY 78). The resulting plan provides training cost estimates for budget planning purposes and training load information for the TWQB training staff.

Task 7 - Analysis of Manpower Problems

No significant problems relating to high turnover, low productivity, lack of communication, morale, lack of training, or difficulty in recruiting were identified.

III. Evaluation of Methodology

A. Problems

Task 1 - Define Workloads

This was probably the most difficult task of the project. There is no way of assessing the validity of the workload estimates which were based upon previous experience. An alternative method was discussed but not pursued. This would involve:

a. Designing and implementing a scheduling system to identify when each of the tasks listed on the table of time factors would be accomplished for ongoing projects.

b. Developing more general time schedules for each of the facilities on the priority list.

These two improvements are feasible and actually necessary for program management and proper utilization of manpower.

Task 2 - Manpower Planning Criteria

No problems were encountered in developing the function and

occupation definitions. Similarly, drawing upon the criteria developed by EPA, no significant problems, except as described below, were encountered in developing the time factors and staffing guides. The development of the table of time factors was facilitated by records of staff members concerning the time required to accomplish various tasks. The time factors were generally lower than those of EPA and therefore can be considered conservative and realistic.

The major problem encountered in the development of the staffing guide was distributing the total number of workyears into the various occupations. This problem was overcome by using the procedure described in Section II - Methodology and Products, Task 2-d. It would be helpful if a more intensive task analysis were performed. This might be done by EPA.

Task 3 - Personnel Inventory

No problems were encountered in completing this form.

Task 4 - Forecast of New Hires and Transfers

The basic methodology was applied with no problems. However, it was not practical to estimate separations. Normally, this is based upon past experience. Because of the small numbers in each occupation, it is questionable if past turnover rates would be reliable. Therefore, estimated separations and transfers were based upon the supervisor's knowledge of his staff.

Task 5 - Develop Staffing Plan

No problems were encountered in completing this form.

Task 6 - Training Catalog and Training Plan

The only problem encountered was the compilation of data concerning available courses. The "catalog" developed can be expected to be improved in time, now that a means is available for this type of documentation. Completion of this task can be facilitated if training resource information was provided by EPA. This information should initially be developed in conjunction with the task analysis referred to in Task 2.

Task 7 - Analysis of Manpower Problems

Guidance was not provided by EPA in this area. Since program managers stated that there were no significant manpower problems, this area was not addressed in this project.

B. Time Required

The project was completed in a time period extending from February through June of 1977. During this five month time period, the manpower planner expended 50% of his available time on the project. The program representative applied 20% of his available time. The EPA manpower planning specialist devoted approximately three manweeks to the completion of the project. Inputs from other participants required less than one manweek. This represents about an 18 to 20 total manweek requirement. The extended time period for completing this project is due to the fact that the program representative was often required to respond to the demands of his principal job activities. Additionally, the research and development nature of this project contributed to the extended time period.

The time of the principals, as indicated above, was primarily

expended in the design of methods and forms and the development of the planning criteria. Less than two manweeks were required to complete the manpower and training forecasts.

IV. Evaluation of Products

The managers of the TWQB construction grant program stated that the manpower requirement determinations generated were realistic. They further stated that they plan to use the methodology on a continuing basis as well as extend and improve upon it.

To date, the program managers have used the products to develop inputs for an EPA "106" grant submission and plan to use them in future Texas Zero Based Budgeting (ZBB) processes. Also, they are now developing criteria for calculating manpower and training needs for assessing the manpower impact and feasibility of assuming increased delegation of authority from EPA for additional construction management functions.

The program managers also cited an additional benefit of the project to be that it enabled them to more systematically examine the career progression and training needs of their employees.

V. Conclusions

1. The pilot effort clearly demonstrated the feasibility of the application of a systematic methodology for determining manpower and training needs. Also, the benefits obtained considerably outweigh the costs involved.
2. Further, the costs of implementing the methodology can be reduced if the front-end work is done centrally rather than on a state-by-state basis. This front-end work includes the development of

forms and methods and generally applicable tasks analyses, training catalogs, and other tools applicable to the various types of water pollution control functions. However, these forms and methods must be adjusted to fit each states' level of involvement in the construction grants program.

3. Elements found to be necessary to apply the methodology include:

   a. Assignment of a qualified manpower planner with time available to work out the detailed tasks of the manpower planning analysis.

   b. Full participation of the program manager through:

      (1) Assignment of a program representative with detailed knowledge of the program's operation and the authority to make decisions on the details of the products of the manpower analysis.

      (2) Review and approval of project's products.

      (3) Application of project's products in the management process.

   c. A written guidance with suggestions concerning forms and methods to be used, workload analyses, occupation structures, and work measurements. These need not be precise but adequate enough to provide a frame of reference for the state water pollution control agency.

   d. Active participation of all of the program staff. This is essential in order to provide inputs into the required analyses and to facilitate understanding and application of the project's products.

   e. Back up technical assistance from EPA or other specialists on unusual problems.

4. While the draft EPA manpower planning methodology and the EPA Manpower Planning Criteria Manual for the Municipal Construction Program facilitated completion of the project, both are subject to improvements based upon the experience gained in this pilot study. It appears that it would be desirable to have a specialized methodology as well as guidance on planning criteria development for each water pollution control function.

VI. Recommendations

1. The TWQB Construction Grants Section should continue to refine the planning criteria and methodology and apply the products of this project.

2. The TWQB manpower planner should develop a plan for extending this methodology to other functional areas of the TWQB.

3. EPA Region VI should, in conjunction with the construction grant staff of the TWQB, review the planning criteria and products of this study. The purpose of this is to facilitate acceptance by the region of the TWQB's program submissions.

4. EPA Headquarters should proceed with its program to establish manpower planning capabilities in state water pollution control agencies.

5. A meeting of TWQB, EPA Region VI, and EPA Headquarters should be held. Objectives of this meeting would be to insure common understanding of the results of this pilot project and to coordinate further actions.

APPENDIX A

DEFINITION OF WORKLOADS

FUNCTION: Municipal Wastewater Treatment Construction Grants

Prepared by H. Voigt, T. Jackson

Date June 24, 1977

WORKLOADS
(Derived from Funding Level)

Cost Categories for Each Step (Cost of Step)	WORKLOADS (Number of Project Starts) FUNDING LEVEL			
	150M	200M	250M	300M
Total Project Starts	155	190	240	285
STEP 1	80	90	115	135
0 to 25k	40	45	58	68
25k to 100k	24	27	35	41
100k to 250k	11	12	15	18
250k to 1M	4	5	6	7
>1M	1	1	1	1
STEP 2	45	60	75	90
0 to 50k	25	34	43	52
50k to 200k	13	17	21	25
200k to 500k	3	4	5	6
500k to 2M	3	4	5	6
>2M	1	1	1	1
STEP 3	30	40	50	60
0 to 500k	11	15	19	23
500k to 2M	10	13	17	20
2M to 5M	4	6	7	8
5M to 20M	3	4	4	5
>20M	2	2	3	4

METHOD FOR DETERMINING NUMBER OF STEPS IN SPECIFIC COST CATEGORIES (BASED ON FUNDING LEVEL)

The project mix (numbers, types, and sizes of construction projects) is based upon past experience. This mix is expected to continue, but eventually, a system should be developed using the needs survey and the Grants Information Control System (GICS) file which will provide specific project schedules.

The approach used in this report for determining project workloads is described in the following paragraphs. This approach assumes a general flow of projects from one year to the next, thus creating relatively stable workloads from year to year. That is, for each step of a particular cost category ending at some time during the fiscal year, there is a new project in the same step and cost category beginning.

The first step is to multiply the expected allocation, less a reserve of approximately 15%, by the percentage of money to be applied to Step 1 projects. This percentage is based upon historical data of the distribution of money into each of the three steps.

170M (200M allocation - 15%) x 4.67 (percentage of money to be applied to Step 1 projects = $7,939,000

Next, divide the total funding for Step 1 by the average historical cost of a Step 1 project. This results in the number of Step 1 projects.

$7,939,000 ÷ $87,295 = 90

Next, apply the following ratios to get the number of Step 2 and Step 3 projects:

Step 1-2 . . . . . 1.5
Step 2-3 . . . . . 1.5

90 (No. of Step 1 projects) ÷ 1.5 = 60 No. of Step 2 projects

60 (No. of Step 2 projects) ÷ 1.5 = 40 No. of Step 3 projects

Next, using the average historical cost of Step 2 and Step 3 projects, and the number of Step 2 and Step 3 projects, calculate the total costs for Step 2 and Step 3.

$138,770 (Avg. cost for Step 2) x 60 (No. of Step 2 projects) = $8,326,200

$3,747,625 (Avg. cost for Step 3) x 40 (No. of Step 3 projects) = $149,905,000

Add the total costs for all three steps and compare this total with the funding level.

$ 7,939,000	Step 1
8,326,200	Step 2
149,905,000	Step 3

Total Funding = $170,000,000 Total Costs = $166,170,200*

*The additional $3,829,800 is added to the 15% reserve.

If the total costs exceeds the total funding, minor adjustments can be made in the number of each of the three steps. For example, if the total costs exceed the total funding by approximately $50,000, the number of Step 2 projects is reduced by one and the number of Step 1 projects is increased by one.

To determine the distribution of projects into specific cost categories, apply the following percentages. These percentages were calculated using historical cost-of-step data from October of 1972 to the present.

Step 1

Cost Category	% of Total No.
0-25k	51
25k-100k	30
100k-250k	12
250k-1M	6
>1M	+ 1
	100

Step 2

Cost Category	% of Total No.
0-50k	62
50k-200k	27
200k-500k	5
500k-2M	5
>2M	+ 1
	100

Step 3

Cost Category	% of Total No.
0-500k	38
500k-2M	34
2M-5M	13
5M-20M	10
>20M	+ 5
	100

Example:

90 (Total Step 1 projects)

90 x .51 = 45 Step 1 projects in 0-25k cost category
90 x .30 = 27 Step 1 projects in 25k-100k cost category
90 x .12 = 12 Step 1 projects in 100k-250k cost category
90 x .06 = 5 Step 1 projects in 250k-1M cost category
90 x .01 = 1 Step 1 projects in >1M cost category
+90

APPENDIX B

FUNCTION DEFINITION

Municipal Wastewater Treatment Construction Grants

The U.S. Environmental Protection Agency, states, and municipalities jointly manage the construction grants program in compliance with the requirements in P.L. 92-500 and the federal regulations that implemented it. The program involves a three-step grant process: (1) development of facility plans for the planning area; (2) design of the plans and specifications for the facility; and, (3) the construction of the facility.

Subsequent to state certification of funding priority for a municipality, a series of activities must be undertaken before the beginning of construction. These include assistance prior to the award for development of the facility plan, the review of the facility plan and other tasks prior to the award for the design of the facility, and the review of the plans and specs and related tasks prior to the award for construction initiation. The required reviews in this pre-construction stage are outlined in the Title II regulations and state rules of practice and procedure.

Subsequent to final approval of the plans and specs and fulfillment of other requirements, the award is made for construction of the facility. A number of activities are required by EPA, the state, and the municipality to ensure that the facility is constructed as planned. These include review of the contracts, review and approval of change orders, interim and final construction inspections, progress payments to the municipality and contractors, and monitoring of the construction performance against the agreed-upon schedule.

In accomplishing the work involved in the subfunctions outlined above, the Texas Water Quality Board has been certified by the Environmental Protection Agency Region VI for certain tasks beyond those required by P.L. 92-500 and the accompanying federal regulations. These tasks include certification for review of plans and specifications, operation and maintenance manuals, and sewer use ordinances. However, some tasks which have not been certified are reviewed in more detail in order to satisfy state interest within the requirements of the state laws, rules, and regulations.

APPENDIX C

OCCUPATION DEFINITIONS

RELATION OF OCCUPATIONAL TITLES
TO STATE CLASSIFICATIONS

Occupational Title	Code	State Classification*
Section Chief	A	Engineer V
Chief, Grants Management	B	Engineer IV
Group Leader, (PPM)	C	Administrative Technician IV, Engineering Assistant II
Administrative Assistant II, (PPM)	D	Administrative Technician III
Administrative Assistant I, (PPM)	E	Administrative Technician II
Clerk II	F	Clerk III
Clerk I	G	Clerk II
Technical Assistant II, (PPM)	H	Engineering Technician IV
Technical Assistant I, (PPM)	I	Engineering Technician III
State Loan Officer	J	Engineering Technician IV
Group Leader, (AM)	K	Engineering Technician IV
Administrative Assistant II, (AM)	L	Administrative Technician III
Administrative Assistant I, (AM)	M	Administrative Technician II
Group Leader, (TM)	N	Engineer I, Administrator of Technical Programs I, Hydrologist I
Technical Assistant II, (TM)	O	Engineering Technician V
Technical Assistant I, (TM)	P	Engineering Technician IV
Archaeologist	Q	Administrative Technician III
Administrative/Quality Control Coordinator	R	Engineering Technician V
Chief, Engineering	S	Engineer IV
Project Engineer	T	Engineer I - III
Secretary II	U	Secretary III
Secretary I	V	Secretary II

*The state classification is included in parenthesis on each of the following occupation definitions.

Function: Municipal Wastewater Treatment Construction Grants

Occupational Title and Code: Chief, Construction Grants Section - A (Engineer V)

Duties: Serves as administrative head of construction grants section. Develops, administers, directs, and coordinates the statewide construction grants program. Develops and directs program policy. Develops and justifies staffing and budgeting needs. Maintains close communication and coordination with Water Quality Board executives and construction grant officials of the U.S. Environmental Protection Agency. Occasional travel is required.

Education and Experience: Registration as a professional engineer is required. At least five years of experience in the design of civil/sanitary facilities is desired. At least two years of experience in the grants management process is required. Broad and detailed knowledge of the construction grants program and related activities of the Texas Water Quality Board is required.

Training Requirements (update, upgrade, short courses): Periodic short courses from universities and EPA Technology Transfer training programs dealing with such things as legal/grants administration, program planning anaysis, operation and maintenance manuals, and facility plans. Periodic short courses in management techniques. Specific courses to be taken as needed include:
"Construction Claims Preparation", "Engineering Management", "Construction Contracts", "Technical Writing for Engineers", "Advanced Water Pollution Control: Physical and Chemical Waste Treatment", and "Effective Technical Presentations".

Function: Municipal Wastewater Treatment Construction Grants

Occupational Title and Code: Chief, Grants Management - B
(Engineer IV)

Duties: Responsible for proper and timely processing of all Title II construction grant applications, preparation and approval of the priority rating lists, and the proper administration of the state enhancement loan program as it applies to construction grants projects. Provide requested information relating to the construction grant applications to the applicants, consulting engineers, and other persons requesting information. Schedules and conducts pre-application conferences when appropriate. Establishes procedures to insure that applicants either present information and data within the required time frame or are eliminated from the program. Maintains a current listing and status of all active applications. Works closely and in coordination with the Chief Engineer and the Chief, Construction Grants Section, to avoid conflicting instructions to an applicant or undue delays in funding or application processing. Assists the Chief, Construction Grants Section, in the preparation of rules, regulations, procedures and policy relating to application processing and related activities. Perform any other duties assigned.

Education and Experience: At least a bachelor's degree in engineering is required. Should be a Civil Engineer and be a Registered Professional Engineer (P.E.). At least five years experience in the design of civil/sanitary facilities is desired and at least two years experience in the grants management process is required. Broad and detailed knowledge of related activities of the Texas Water Quality Board is required.

Training Requirements (update, upgrade, short courses): Periodic university courses to insure currency in new procedures and state of the art advances having to do with sewage treatment design and component improvement. Refresher courses, workshops, seminars, etc. involving management, federal and state construction grant procedures, data processing, and operation and maintenance of sewerage treatment facilities. Specific courses to be taken as needed include: "Environmental Protection Agency Workshop on Construction Grants", "Engineering Management", "Project Management", "Management Introduction to ADP", "ADP Orientation for the User", "Data Base Management Systems Concept", "Water Pollution Engineering", "Workshop in Environmental Assessment", "Wastewater Treatment and Disposal", "Construction Contracts", "Effective Technical Presentations".

APPENDIX D

ACTIVITY ANALYSIS

Construction Grant Activity	John Fisher	Jim Fowler	Billie Hale	Marie Phillips	Marsha Blacketter	GROUP: Program/ Priority Management (PPM)
I. Direct Project Activities						
A. Step 1						
1. Pre-Application Act. and conf.	1A*	2A	3A	3A	3A	*See footnote 1 for explanation of individual activity codes.
2. Application Review						
a. Admin. Review	2A					
b. Review of Plan of Study	2A					
c. Planning Area of Coordination						
3. Facility Plan Review						
a. I/I Analysis						
b. SSES						
c. Env. Assessment						
d. Cost Effective Analysis						
e. Sub-Agreements						
f. Value Engineer Proposal						
g. Other Elements of Plan						
(1) Flood Hazard Analysis WDF, IBC, COE Coordination						
(2) Bypassing Analysis						
(3) Eligibility Determination						
(4) Evaluate Reasonableness of Eng. Fees						
(5) Evaluate Design Criteria						
(6) Compatability with I & I Analysis and/or SSES						
(7) Design Population & Industrial PE projections						
(8) Compatability with Inf. in Central Files						
(9) Operating Evaluation						
(10) Evaluate Appropriateness of Discharge Permit						
(11) Evaluate Appropriateness of Public Hearing						
(12) Conferences						

Construction Grant Activity

(Step 1 continued)

	John Fisher	Jim Fowler	Billie Hale	Marie Phillips	Marsha Blacketter	GROUP: (PPM)
4. O+M Evaluation Report						
5. Develop Plan of UCS/ICR with Schedule of Implementation						
6. Letter of Intent for Industry						
7. Preliminary P of O (PRM 77-3)						
8. Archaeological Clearance						
9. General Project Management	1A	2A	3A	3A	3A	
a. Grants Accounting System	1A	2A				
b. Administrative Inspections	2A	2A				
c. Permit/Enf. Coordination	1A	2A				
10. Grant Increases	1AE	2AE				
11. Time Extensions	1A	2A				
12. Payment Requests						
13. Inquiry Response (Limited to Municipalities)	2AE	2A	3A	3A	3A	

Construction Grant Activity	John Fisher	Jim Fowler	Billie Hale	Marie Phillips	Marsha Blacketter	GROUP: (PPM)
B. Step 2						
1. Application Review	2A					
2. Sub-Agreements						
3. Approve P & S						
4. Determination of Employment of Chief Operator						
5. Review and Approve Addendas						
6. Value Engineering Analysis						
7. Wage Rates						
8. "In Progress" Design Reviews						
9. Advise Grantee of New and/or Ignored State and Federal Requirements	2A					
10. Final P of O (PRM 77-3)						
11. General Project Management	1A	2A	3A	3A	3A	
a. Grants Accounting System	1A	2A				
b. Administrative Inspections	2A	2A				
c. Permit/Enf. Coordination	1A	2A				
12. Grant Increases	1AE	2AE				
13. Time Extensions	1A	2A				
14. Payment Requests						
15. Inquiry Response (Limited to Municipalities)	2AE	2A	3A	3A	3A	

Construction Grants Activity

	John Fisher	Jim Fowler	Billie Hale	Marie Phillips	Marsha Blacketter	GROUP: (PPM)
C. Step 3						
1. Application Review	2A					
2. Sub-Agreements						
3. Approve Contract Documents						
a. Executed Contract Documents						
4. Approve Draft O&M Manual						
5. Final O&M Manual						
6. Interim Inspections						
7. Approve Draft UCS/ICR						
8. Approve Final UCS/ICR						
9. Approve Draft SUO						
10. Approve Final SUO						
11. Final Construction Inspec.						
12. "Start Up" Proposal						
13. General Project Management	1A	2A	3A	3A	3A	
a. Grants Accounting System	1A	2A				
b. Permit/Enf. Coordination	1A	2A				
14. Grant Increases	1AE	2AE				
15. Time Extensions	1A	2A				
16. Payment Requests						
17. Review and Approve Change Orders						
18. Inquiry Response (Limited to Municipalities)	2AE	2A	3A	3A	3A	

GROUP: (PPM)

Construction Grant Activity	John Fisher	Jim Fowler	Billie Hale	Marie Phillips	Marsha Blacketter
II. Indirect Activities					
A. Supervision					
1. Section Chief					
2. Grants Management Chief					
a. Group Leader - Program/Priority Management	1A				
b. Group Leader - Administrative Management					
c. Group Leader - Technical Management					
3. Chief Engineer					
B. Project Monitoring (Mang. Info. System)					
1. Project Scheduling	1A	2A	3A	3A	3A
2. Fund Management	1A	2A			
3. Workload Projections	2A	2A			
4. Records Maintenance	1A	2A	3A	3A	3A
5. Project Close-S[illegible]			3A	3A	3A
6. Management of System	1A	2A	3A	3A	3A
C. Special Studies or Projects; (EPA/GAO/OMB Surveys, Requests From Front Office, Legislative or Congressional Inquiries).	2A	2A	3A	3A	3A
D. Priority Rating System					
1. Pre-rating Inspection Evaluation	1A				
2. Informational Data Requests	1A		3A	3A	3A
3. Project Eligibility/Project Action	1A				
4. Management of System	1A				
E. Budget Planning, State Program Plan, Program Evaluation, Manpower Planning	2A	2A	3A	3A	3A
F. Needs Survey					
G. State Loan Program	1A				
H. Administrative/Quality Control Coordinator					
I. Secretarial Support					
1. Section Chief					
2. Grants Management Chief					
a. Program/Priority Management Group					
b. Administrative Management Group					
c. Technical Management Group					
3. Chief Engineer and Project Engineers					
J. Clerical Support (Included in Individual Tasks and Items Under Direct and Indirect Activities)					

FOOTNOTE 1

EXPLANATION OF INDIVIDUAL ACTIVITY CODES

A = Administrative - Processing of paper work necessary to satisfy program requirements such as payment requests, application review, etc.

E = Engineering - Determination of satisfaction or program requirements such as review of facility plans, plans and specifications, etc.

AE = Combination of Administrative and Engineering

LEVEL

(1) Leader - Top technical specialist in the activity.

(2) Independent Worker - Responsible for producing outputs with minimal supervision or assistance.

(3) Assistant - Works under supervision of level 1 or 2; work is reviewed by level 1 or 2; requires specialized knowledge.

(4) Secretarial - Provides typing and other office services.

(5) Clerical - Handles routine tasks and works under supervision of level 1, 2, or 3.

APPENDIX E

TABLE OF TIME FACTORS

TABLE OF TIME FACTORS

Construction Grant Activity	Travel Time Factor	Estimated & Allowed Times*(manhours) in specific cost categories for each step (cost of step). *See Footnote 1.									
		0 to $25,000		25k to 100k		100K to 250k		250k to 1M		>1M	
I. Direct Project Activities		EST.	ALL.								
A. Step 1											
1. Pre-Application Act. and conf.		4.0	4.56	4.0	4.56	4.0	4.56	4.0	4.56	4.0	4.56
2. Application Review											
a. Admin. Review		3.0	3.42	3.0	3.42	3.5	3.99	4.0	4.56	4.0	4.56
b. Review of Plan of Study		4.0	4.56	4.0	4.56	4.0	4.56	5.0	5.70	6.0	6.84
c. Planning Area of Coordination		4.0	4.56	4.0	4.56	4.0	4.56	4.0	4.56	6.0	6.84
3. Facility Plan Review											
a. I/I Analysis		15	17.1	15	17.1	20	22.8	20	22.8	40	45.6
b. SSES		10	11.4	12	13.68	15	17.1	15	17.1	20	22.8
c. Env. Assessment		5.0	5.7	5.0	5.7	7.0	7.98	10.0	11.4	10.0	11.4
d. Cost Effective Analysis		6.0	6.84	6.0	6.84	8.0	9.12	10.0	11.4	15.0	17.1
e. Sub-Agreements		2.0	2.28	2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56
f. Value Engineer Proposal	.15	0	0	4.0	5.16	4.0	5.16	6.0	7.74	6.0	7.74
g. Other Elements of Plan		30.0	34.2	30.0	34.2	30.0	34.2	45.0	51.3	60.0	68.4
(1) Flood Hazard Analysis WDR, IBC, COE Coordination											
(2) Bypassing Analysis											
(3) Eligibility Determination											
(4) Evaluate Reasonableness of Eng. Fees											
(5) Evaluate Design Criteria											
(6) Compatability with I & I Analysis and/or SSES											
(7) Design Population & Industrial PE projections											
(8) Compatability with Inf. in Central Files											
(9) Aerating Evaluation											
(10) Evaluate Appropriateness of Discharge Permit											
(11) Evaluate Appropriateness of Public Hearing											
(12) Conferences											

Construction Grant Activity (Step 1 continued)	Travel Time Factor	Estimated and Allowed Times (manhours) in specific cost categories for each step (cost of step).									
		0 to $25,000		25K to 100K		100K to 250K		250K to 1M		>1M	
		EST.	ALL.								
4. O+M Evaluation Report		2.0	2.28	2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56
5. Develop Plan of UCS/ICR with Schedule of Implementation		2.0	2.28	2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56
6. Letter of Intent for Industry		1.0	1.14	1.0	1.14	1.0	1.14	1.0	1.14	1.0	1.14
7. Preliminary P of O (PRM 77-3)		4.0	4.56	4.0	4.56	4.0	4.56	6.0	6.84	8.0	9.12
8. Archaeological Clearance	.25	12.0	16.68	15.0	20.85	16.0	20.24	16.0	22.24	16.0	22.24
9. General Project Management											
a. Grants Accounting System		8.0	9.12	8.0	9.12	6.0	6.84	6.0	6.84	6.0	6.84
b. Administrative Inspections	.5	6.0	9.84	6.0	9.84	6.0	9.84	8.0	13.12	15.0	24.6
c. Permit/Enf. Coordination		2.0	2.28	2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56
10. Grant Increases		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
11. Time Extensions		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
12. Payment Requests		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
13. Inquiry Response (Limited to Municipalities)	.15	30.0	38.7	36.0	46.44	40.0	51.6	48.0	61.92	60.0	77.4
Total Manhours/Step I		174	208.86	189	228.21	204.5	246.73	260	312.5	329	396.4
Total Mandays/Step I		21.75	26.11	23.63	28.53	25.56	30.84	32.5	39.07	41.13	49.56

Construction Grant Activity	Travel Time Factor	Estimated and Allowed Times (manhours) in specific cost categories for each step (cost of step).									
		0 to $50,000		50K to 200K		200K to 500K		500K to 2M		>2M	
Step 2		EST.	ALL.								
1. Application Review		3.0	3.42	3.0	3.42	3.0	3.42	5.0	5.7	8.0	9.12
2. Sub-Agreements		2.0	2.28	2.0	2.28	4.0	4.56	6.0	6.84	8.0	9.12
3. Approve P & S		34.0	38.76	34.0	38.76	40.0	45.6	60.0	68.4	75.0	85.5
4. Determination of Employment of Chief Operator		1.0	1.14	1.0	1.14	1.0	1.14	1.0	1.14	1.0	1.14
5. Review and Approve Addendas		5.0	5.7	5.0	5.7	5.0	5.7	10.0	11.4	15.0	17.1
6. Value Engineering Analysis	.15	0	0	28.0	36.12	28.0	36.12	35.0	45.15	56.0	72.24
7. Wage Rates		2.5	2.85	2.5	2.85	2.5	2.85	5.0	5.7	10.0	11.4
8. "In Progress" Design Reviews	.15	30.0	43.2	30.0	43.2	30.0	43.2	45.0	58.05	60.0	77.4
9. Advise Grantee of New and/or Ignored State and Federal Requirements		1.0	1.14	1.0	1.14	1.0	1.14	2.0	2.28	4.0	4.56
10. Final P of O (PRM 77-3)		4.0	4.56	4.0	4.56	4.0	4.56	6.0	6.84	8.0	9.12
11. General Project Management											
a. Grants Accounting System		8.0	9.12	8.0	9.12	6.0	6.84	6.0	6.84	6.0	6.8
b. Administrative Inspections	.50	6.0	9.84	6.0	9.84	6.0	9.84	8.0	13.12	15.0	24.6
c. Permit/Enf. Coordination		2.0	2.28	2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56
12. Grant Increases		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
13. Time Extensions		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
14. Payment Requests		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
15. Inquiry Response (Limited to Municipalities)	.15	30.0	38.70	36.0	46.44	40.0	51.6	48.0	61.92	60.0	77.4
Total Manhours/Step 2		152.5	190.35	186.5	234.21	196.5	246.21	277	338.98	366	451.14
Total Mandays/Step 2		19.06	23.79	23.31	29.28	24.56	30.78	34.63	42.38	45.76	56.4

Construction Grant Activity	Travel Time Factor	Estimated and Allowed Times (manhours) in Specific Cost Categories for Each Step (Cost of Step).									
		0 to $500,000		500K to 2M		2M to 5M		5M to 20M		>20M	
		EST.	ALL.								
Step 3											
1. Application Review		2.0	2.28	2.0	2.28	4.0	4.56	6.0	6.84	9.0	10.26
2. Sub-Agreements		2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56	6.0	6.84
3. Approve Contract Documents		4.0	4.56	6.0	6.84	8.0	9.12	12.0	13.68	20.0	22.8
a. Executed Contract Documents		4.0	4.56	6.0	6.84	8.0	9.12	12.0	13.68	20.0	22.8
4. Approve Draft O&M Manual		3.0	3.42	3.0	3.42	4.0	4.56	6.0	6.84	6.0	6.84
5. Final O&M Manual		3.0	3.42	3.0	3.42	4.0	4.56	6.0	6.84	6.0	6.84
6. Interim Inspections	.50	16.0	26.24	16.0	26.24	20.0	32.8	24.0	39.36	32.0	52.48
7. Approve Draft UCS/ICR		4.0	4.56	4.0	4.56	4.0	4.56	6.0	6.84	8.0	9.12
8. Approve Final UCS/ICR		3.0	3.42	3.0	3.42	3.0	3.42	4.0	4.56	6.0	6.84
9. Approve Draft SUO		3.0	3.42	3.0	3.42	3.0	3.42	4.0	4.56	4.0	4.56
10. Approve Final SUO		2.0	2.28	2.0	2.28	2.0	2.28	3.0	3.42	3.0	3.42
11. Final Construction Inspec.	.50	8.0	13.12	8.0	13.12	12.0	19.68	15.0	24.6	20.0	32.8
12. "Start Up" Proposal	.15	8.0	13.12	8.0	13.12	12.0	19.68	15.0	24.6	20.0	32.8
13. General Project Management											
a. Grants Accounting System		8.0	9.12	10.0	11.4	12.0	13.68	15.0	17.1	20.0	22.8
b. Permit/Enf. Coordination		2.0	2.28	2.0	2.28	4.0	4.56	4.0	4.56	4.0	4.56
14. Grant Increases		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
15. Time Extensions		8.0	9.12	8.0	9.12	8.0	9.12	12.0	13.68	12.0	13.68
16. Payment Requests		12.0	13.68	12.0	13.68	12.0	13.68	12.0	13.68	15.0	17.1
17. Review and Approve Change Orders		12.0	13.68	12.0	13.68	15.0	17.1	20.0	22.68	30.0	34.2
18. Inquiry Response (Limited to Municipalities)	.15	30.0	38.7	36.0	46.44	40.0	51.6	48.0	61.92	60.0	77.1
Total Manhours/Step 3		142	182.38	154	196.96	187	241.18	240	307.8	313	401.52
Total Mandays/Step 3		17.75	22.8	19.25	24.63	23.38	30.15	30.01	38.48	39.13	50.19

Construction Grant Activity	Travel Time Factor	Estimated and Allowed Times (Per Year) ($200M Workloads)			
		ESTIMATED		ALLOWED	
II. Indirect Activities		Manhours	Mandays	Manhours	Mandays
A. Supervision					
1. Section Chief		1174	146.7	1301.6	162.7
2. Grants Management Chief		782	97.8	892	111.5
a. Group Leader - Program/Priority Management		391	48.9	445.6	55.7
b. Group Leader - Administrative Management		391	48.9	445.6	55.7
c. Group Leader - Technical Management		391	48.9	445.6	55.7
3. Chief Engineer		782	97.8	892	111.5
B. Project Monitoring (Mang. Info. System)					
1. Project Scheduling		700	87.5	798	99.8
2. Fund Management		960	120	1094	136.8
3. Workload Projections		240	30	273.6	34.2
4. Records Maintenance		3130	391.2	3568	446
5. Project Close-Out		240	30	273.6	34.2
6. Management of System		960	120	1094	136.8
C. Special Studies or Projects; (EPA/GAO/OMB Surveys, Requests From Front Office, Legislative or Congressional Inquiries).	.15	700	87.5	903.2	112.9
D. Priority Rating System					
1. Pre-rating Inspection Evaluation		400	50	456	57
2. Informational Data Requests		400	50	456	57
3. Project Eligibility/Project Action		960	120	1094.4	136.8
4. Management of System		1200	150	1368	171
E. Budget Planning, State Program Plan, Program Evaluation, Manpower Planning		720	90	820.8	102.6
F. Needs Survey		2248	281	2560	320
G. State Loan Program		1565	195.6	1784	223
H. Administrative/Quality Control Coordinator		1565	195.6	1784	223
I. Secretarial Support					
1. Section Chief		1565	195.6	1784	223
2. Grants Management Chief		1565	195.6	1784	223
a. Program/Priority Management Group		1565	195.6	1784	223
b. Administrative Management Group		1565	195.6	1784	223
c. Technical Management Group		1565	195.6	1784	223
3. Chief Engineer and Project Engineers		3130	391.2	3568	446
J. Clerical Support (Included in Individual Tasks and Items Under Direct and Indirect Activities)					
Total for Indirect Activities		30,854	3,856.6	35,238	4,404.9

FOOTNOTE 1

Estimated Time = time required to accomplish the activity by an average person with no delays or interruptions

Allowed Time = estimated time plus allowances for non-productive time: travel, administrative activities, delays, and personal matters. Allowed time used in calculating quantitative manpower requirements.

Percent of Workday Consumed by Non-Productive Activities:

*1. Administrative Activities (meetings, time and leave reports, travel vouchers, monthly reports) (30 min. per day);

30 ÷ 480 min. per day = 6%

*2. Delays (10 min. per day); 10 ÷ 480 min. per day = 2%

*3. Personal Matters (30 min. per day); 30 ÷ 480 min. per day = 6%

**4. Travel - figured separately for each activity

*Total time percentage for these non-productive activities applied to each construction grant activity.

**(a) Figure travel time by first applying travel time factor to estimated time. (b) Then apply percentages for administrative activities, delays, and personal matters to estimated time. (c) Add a and b to the estimated time to get the total allowed time for the activity. Example: I, A, 3, f, page 1, "Value Engineer Proposal" for the $25,000 to $100,000 cost category.

(a) 4.0 (estimated time) x .15 (travel time factor) = .60

(b) 4.0 (estimated time) x .14 (time factor for administrative activities, delays, and personal matters) = .56

(c) .60 + .56 + 4.0 = 5.16 (total allowed time)

APPENDIX F

CALCULATION SHEETS ($200M)

CALCULATION SHEETS

Funding Level $200 M FY 78

I. Direct Project Activities

A. Total Step 1 Workload (Allowed Time) = 2,560.25

1. 45 (0 to 25K) x 26.11 workdays = 1,174.95
2. 27 (25K to 100K) x 28.53 workdays = 770.31
3. 12 (100K to 250K) x 30.84 workdays = 370.08
4. 5 (250K to 1M) x 39.07 workdays = 195.35
5. 1 (>1M) x 49.56 workdays = 49.56

Total Workyears for Step 1 =

2,560.25 ÷ 223* = 11.48 = 12

*See Footnote 1

B. Total Step 2 Workload (Allowed Time) = 1,655.66

1. 34 (0 to 50K) x 23.79 workdays = 808.86
2. 17 (50K to 200K) x 29.28 workdays = 497.76
3. 4 (200K to 500K) x 30.78 workdays = 123.12
4. 4 (500K to 2M) x 42.38 workdays = 169.52
5. 1 (>2M) x 56.4 workdays = 56.40

Total Workyears for Step 2 =

1,655.66 ÷ 223 = 7.42 = 8

C. Total Step 3 Workload (Allowed Time) = 1,097.39

1. 15 (0 to 500K) x 22.8 workdays = 342.00
2. 13 (500K to 2M) x 24.63 workdays = 320.19
3. 6 (2M to 5M) x 30.15 workdays = 180.90
4. 4 (5M to 20M) x 38.48 workdays = 153.92
5. 2 (> 20M) x 50.19 workdays = 100.38

Total Workyears for Step 3 =

1,097.39 ÷ 223 = 4.92 = 5

II. Indirect Activities (Allowed Time-Workdays) = 4,404.90

A. Supervision = 552.80

B. Project Monitoring = 887.80

C. Special Studies or Projects = 112.90

D. Priority Rating System = 421.80

E. Budget Planning, etc. = 102.60

F. Needs Survey = 320.0

G. State Loan Program = 223.0

H. Administrative/Quality Control Coordinator = 223.0

I. Secretarial Support = 1,561.0

Total Workyears for Indirect Activities

= 4,404.90 ÷ 223 = 19.7 = 20

III. Total Workyears = 45

I. Direct Project Activities

A. Step 1 Projects = 12

B. Step 2 Projects = 8

C. Step 3 Projects = 5

II. Indirect Activities = 20

FOOTNOTE 1

*The number of workdays available to an individual in one year is 223. This number is derived by using the following procedure:

Assigned Time

5 days per week per man for 1 year = 52 weeks

x 5 days = 260 mandays with 8 hours in each day

Non-Available Time

Days	Category
12	Vacation
12	Holidays
8	Sick Leave
+5	Training
37	

Available Time = 260 - 37 = 223 Days

APPENDIX G

STAFFING GUIDE

FUNCTION: Municipal Wastewater Treatment Construction Grants

Prepared By: H. Voigt, T. Jackson

Date: 6-24-77

WORKLOAD INDICATOR: Number of Workyears Derived from Awards, Active Projects, and Additional Activities

SOURCE OF WORKLOAD INDICATOR: Funding Level

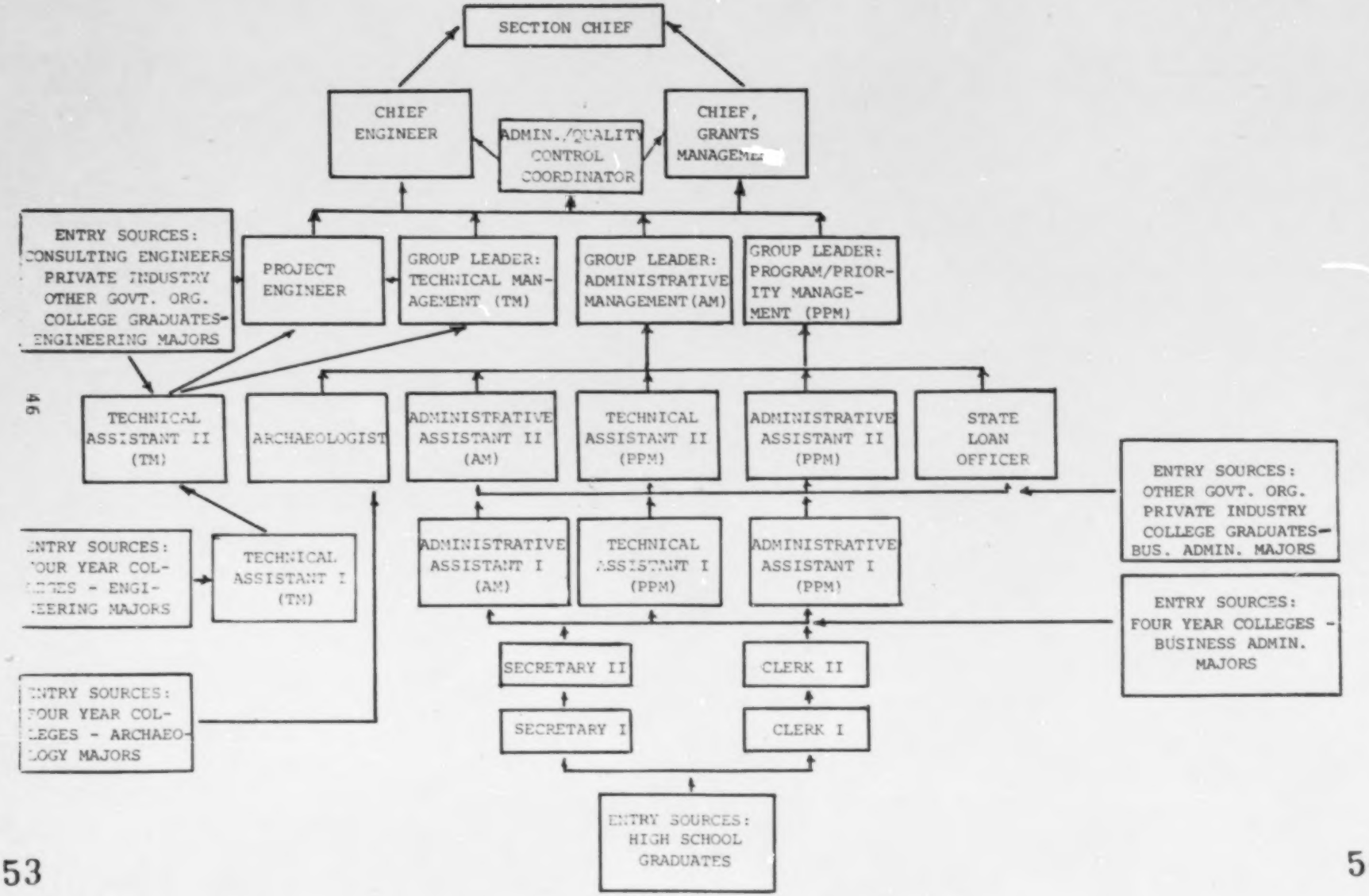
OCCUPATIONAL TITLE	CODE	QUANTITATIVE PERSONNEL REQUIREMENTS			
		Increments of Workload Indicator			
		$150 M	$200 M	$250 M	$300 M
Section Chief	A	1	1	1	1
Chief, Grants Mgmnt.	B	1	1	1	1
Group Leader, Program/ Priority Mgmnt. (PPM)	C	1	1	1	1
Administrative Assistant II (PPM)	D	1	1	2	3
Administrative Assistant I (PPM)	E	0	1	1	2
Clerk II	F	3	3	4	4
Clerk I	G	2	3	4	5
Technical Assistant II (PPM)	H	1	2	3	3
Technical Assistant I (PPM)	I	2	2	2	3
State Loan Officer	J	1	1	1	1
Group Leader: Admin. Managment (AM)	K	1	1	1	1
Administrative Assistant II (AM)	L	1	1	1	2
Administrative Assistant I (AM)	M	0	1	2	2
Group Leader - Tech. Mgmnt. (TM)	N	1	1	1	1
Technical Assistant II (TM)	O	1	2	3	3
Technical Assistant I (TM)	P	2	2	2	3
Archaeologist	Q	1	1	2	2
Admin./Quality Control Coor.	R	1	1	1	1
Chief Engineer	S	1	1	1	1
Project Engineer	T	8	11	14	16
Secretary II	U	3	4	4	4
Secretary I	V	3	3	4	5
TOTAL		36	45	56	65

APPENDIX H

CAREER LADDER
CONSTRUCTION GRANTS SECTION

Prepared by H. Voigt, T. Jackson

Date 6-22-77


SECTION CHIEF
CHIEF ENGINEER
ADMIN./QUALITY CONTROL COORDINATOR
CHIEF, GRANTS MANAGEME
ENTRY SOURCES: CONSULTING ENGINEERS PRIVATE INDUSTRY OTHER GOVT. ORG. COLLEGE GRADUATES-ENGINEERING MAJORS
PROJECT ENGINEER
GROUP LEADER: TECHNICAL MANAGEMENT (TM)
GROUP LEADER: ADMINISTRATIVE MANAGEMENT (AM)
GROUP LEADER: PROGRAM/PRIORITY MANAGEMENT (PPM)
TECHNICAL ASSISTANT II (TM)
ARCHAEOLOGIST
ADMINISTRATIVE ASSISTANT II (AM)
TECHNICAL ASSISTANT II (PPM)
ADMINISTRATIVE ASSISTANT II (PPM)
STATE LOAN OFFICER
ENTRY SOURCES: OTHER GOVT. ORG. PRIVATE INDUSTRY COLLEGE GRADUATES-BUS. ADMIN. MAJORS
ENTRY SOURCES: FOUR YEAR COLLEGES - ENGINEERING MAJORS
TECHNICAL ASSISTANT I (TM)
ADMINISTRATIVE ASSISTANT I (AM)
TECHNICAL ASSISTANT I (PPM)
ADMINISTRATIVE ASSISTANT I (PPM)
ENTRY SOURCES: FOUR YEAR COLLEGES - BUSINESS ADMIN. MAJORS
ENTRY SOURCES: FOUR YEAR COLLEGES - ARCHAEOLOGY MAJORS
SECRETARY II
CLERK II
SECRETARY I
CLERK I
ENTRY SOURCES: HIGH SCHOOL GRADUATES

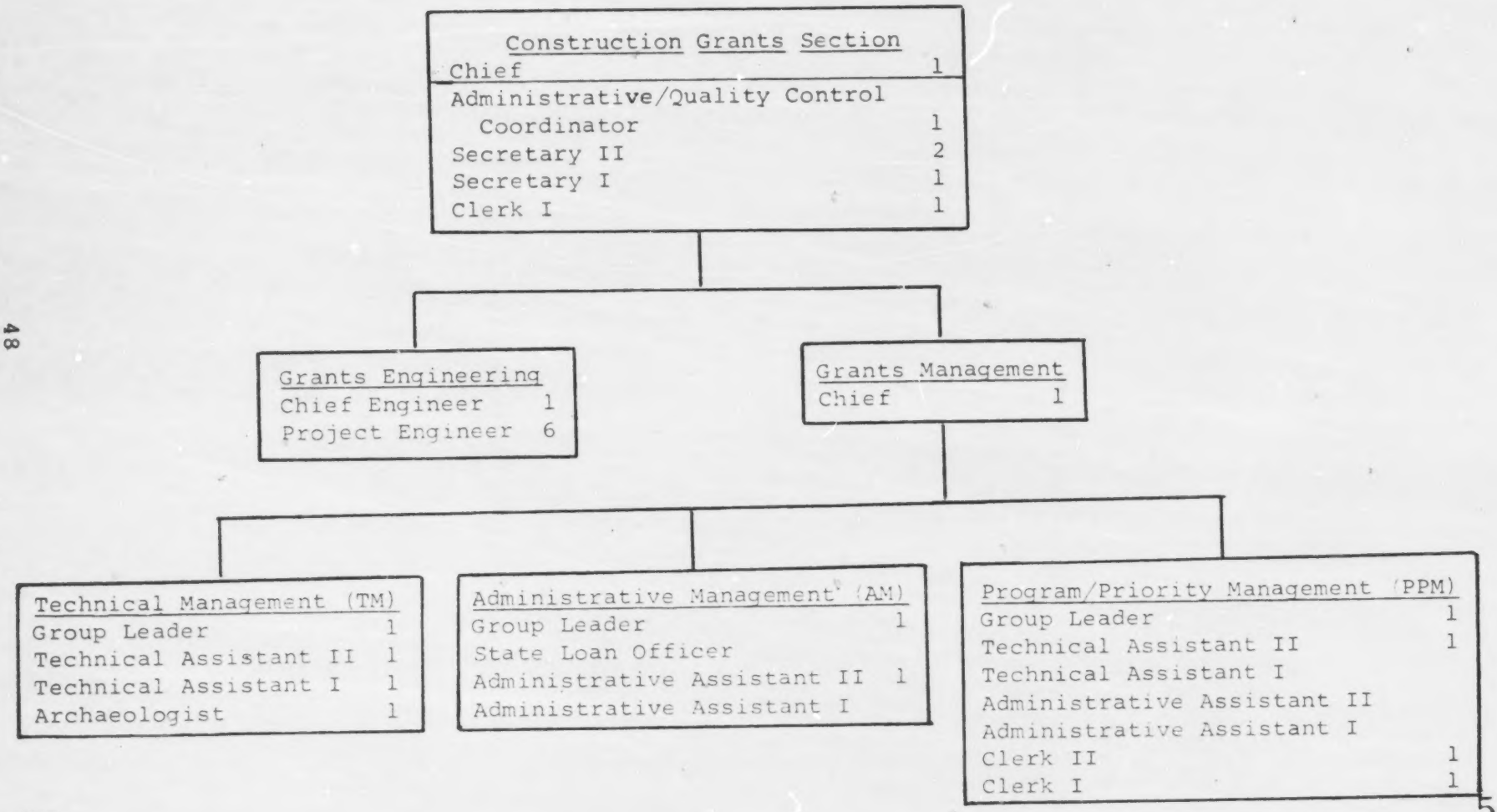
APPENDIX I

ORGANIZATION CHARTS

H. Voigt
Prepared by T. Jackson

Date 6-22-77

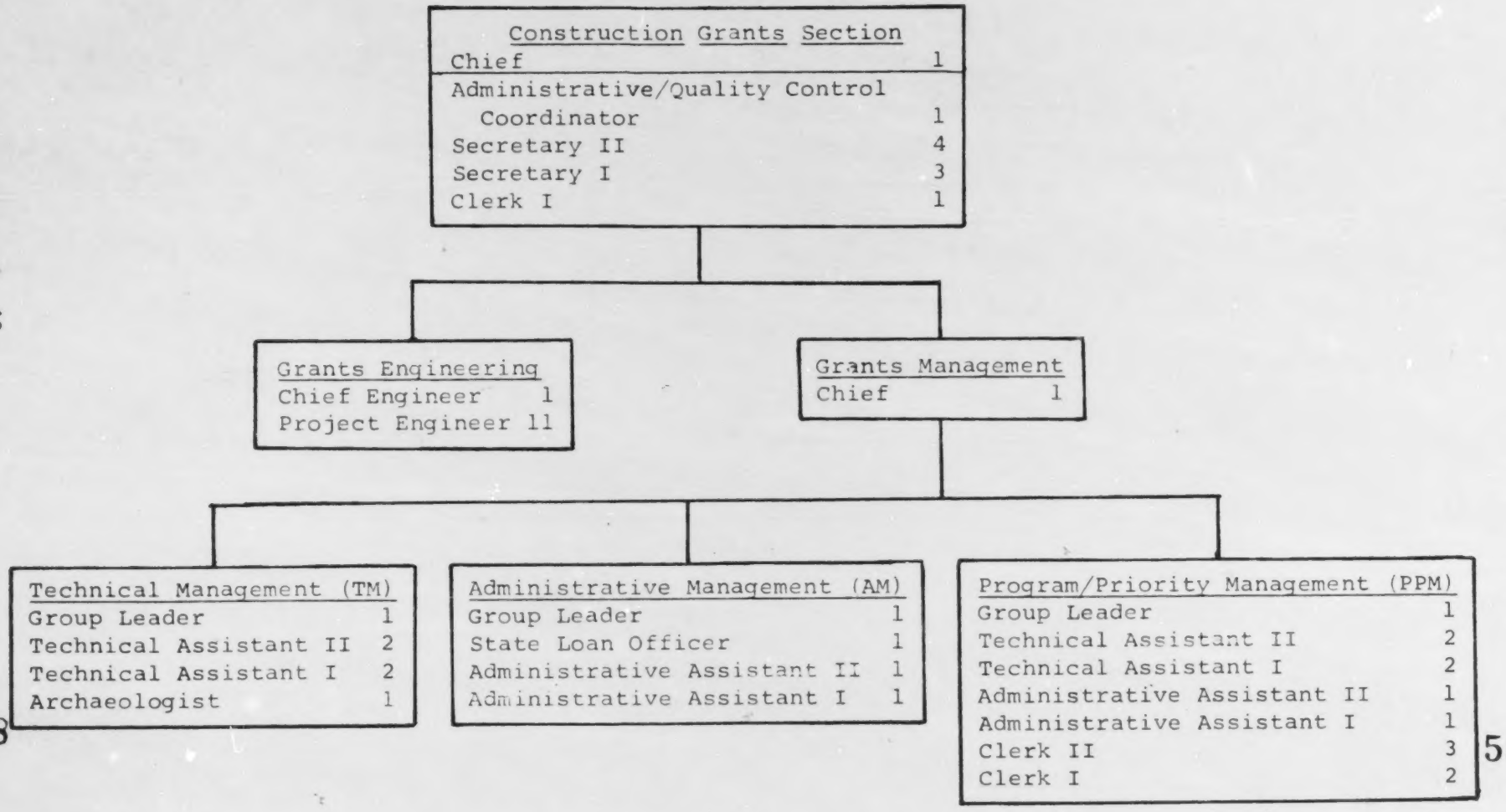
ORGANIZATION CHART
CONSTRUCTION GRANTS SECTION
JUNE, 1977
(AUTHORIZED POSITIONS SHOWN)



H. Voigt
Prepared by T. Jackson

Date 6-22-77

ORGANIZATION CHART
CONSTRUCTION GRANTS SECTION
FY 78 (TO MEET $200M WORKLOADS)



APPENDIX J

PERSONNEL INVENTORY

Organization Construction Grants — Prepared by T. Jackson — H. Voigt

Time Period June, 1977 — Date 6-24-77

NAME	OCCUPATIONAL TITLE AND CODE																				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
	Section Chief	Chief, Grants Mgr	Grp. Ldr. (PPM)	Admin.Asst II (PPM)	Admin.Asst I (PPM)	Clerk II	Clerk I	Tech.Asst. II (PPM)	Tech.Asst. I (PPM)	State Loan Officer*	Group Leader(AM)*	Admin.Asst II (AM)	Admin.Asst I (AM)	Group Ldr. (TM)	Tech.Asst. II (TM)	Tech.Asst. I (TM)	Archaeologist	Admin./Qual. Control Coor.	Chief Engineer	Project Engineer	Sec. II	Sec. I
M.Blacketter						Q	AQ														Q	
C.Ferguson										Q								AQ				
J.Fisher			AQ							Q	Q							Q				
S.Fisher						Q															Q	AQ
J.Fowler								AQ		Q												
B.Galindo															Q	AQ						
L.Graham										AQ	AQ							Q				
B.Hale					Q	AQ																
J.Johnston																		Q		AQ		
B.Jones		Q																Q	Q	AQ		
D.Morris		Q								Q				AQ				Q				
D.Nelson		Q																Q	Q	AQ		
M.Phillips					Q	Q	AQ															
M.Rhanor																					AQ	
M.Rose	AQ																					
C.Shilling		Q																Q	Q	AQ		
J.Steed														Q	AQ			Q				
Vacant												AQ										
H.Voigt	Q	AQ																Q	Q	Q		
H.Whitnett																	AQ					
Vacant																					AQ	
W.Winters																		Q	Q	AQ		
Vacant																			AQ			
J.Locke																				AQ		
Total Assigned	24	1	1	1	0	0	1	1	0	0	1	1	0	1	1	1	1	1	1	6		1
Total Qual.**	61	2	6	1	0	3	2	1	0	5	2	1	0	2	2	1	1	11	6	7	1	1

A = Assigned — Q = Qualified

* One person is currently assigned to both of these positions. This person is counted only once in determining the total number assigned.

** Total qualified figured by determining qualifications in terms of upgrade positions only. It is assumed that people would be qualified for lower level positions. For example, a group leader would be qualified to do the work of one of the staff members in his group.

APPENDIX K

Begin of Period June, 1977

End of Period September 1, 1978

MANPOWER TRANSITION ANALYSIS*

Organization Construction Grants

Prepared by H. Voigt, T. Jackson

Date 6-24-77

Code	Occupation	Total Employees at Beginning of Period	Total Separations	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Tot. Sep.
		a 21	b 5																							c 5
A	Section Chief	1		1																						
B	Chief, Grants Management	1			1																					
C	Group Leader (PPM)	1				1																				
D	Admin. Asst. II (PPM)	0					0																			
E	Admin. Asst. I (PPM)	0						0																		
F	Clerk II	1	1						0			1														
G	Clerk I	2	1						1	0																1
H	Tech. Asst. II (PPM)	1									0															1
I	Tech. Asst. I (PPM)	0										0														
J	State Loan Officer	0											0													
K	Group Leader (AM)	1												1												
L	Admin. Asst. II (AM)	0													0											
M	Admin. Asst. I (AM)	0														0										
N	Group Leader (TM)	1															1									
O	Tech. Asst. II (TM)	1																0								1
P	Tech. Asst. I (TM)	1	1															1	0							
Q	Archaeologist	1																		1						
R	Admin/Quality Control Coor.	1																			1					
S	Chief Engineer	0																				0				
T	Project Engineer	6	1																			1	4			1
U	Secretary II	1																						0		1
V	Secretary I	1	1																					1	0	
	Total Transfers In d	5							1			1						1				1		1		
	Total New Hires e	29					1	1	2	3	2	1	1		1	1		1	2				7	3	3	
	End of Period f	45		1	1	1	1	1	3	3	2	2	1	1	1	1	1	2	2	1	1	1	11	4	3	

*See Footnote 1 for an explanation of how the transition analysis was completed.

FOOTNOTE 1

MANPOWER TRANSITION ANALYSIS GUIDE

The following is a step-by-step account of the procedure used in completing the manpower transition analysis.

(1) Enter the beginning of period of employment in column a. This is obtained from the personnel inventory (Appendix J).

(2) Enter the projected end of period employment in row f. This is obtained from the staffing guide for the $200 million funding level (Appendix G).

(3) Enter the number of anticipated separations in column c. This is an estimate based upon the program manager's knowledge of his staff and past experience.

(4) Enter the number of anticipated transfers in the appropriate blocks. For example, occupation F (Clerk II) has one transfer to occupation I (Technical Assistant I - PPM) and therefore a 1 is entered in occupational row F under occupational column I. (A 1 is also entered in column b, occupational row F, to indicate that a person is transferring out of occupation F.) The number of personnel remaining in occupation F is entered in occupational row F under occupational column F. This number is 0. As in anticipated separations, the number of anticipated transfers is an estimate based upon the program manager's knowledge of his staff and past experience.

(5) Subtract the number of personnel remaining in each occupation from the projected end of period employment for each occupation. For example, the number of personnel remaining in occupation F is 0 and the projected end of period employment is 3.(3-0 = 3 = number of accessions or replacements needed.)

(6) The 3 accessing needed by occupation F were expected to be filled by 2 new hires and 1 transfer in. (Note by examining occupational column F that a person is expected to transfer in from occupation G (Clerk I). The total number of transfers in for each occupation is entered in row d.) In some occupations, no transfers in occur and thus all accessions needed must be filled by new hires. The number of new hires needed is entered in row e.

APPENDIX L

CONSTRUCTION GRANTS
SECTION PERSONNEL

Analysis of Manpower Needs
Prepared by H. Voigt / T. Jackson

Date June 24, 1977

		EMPLOYMENT		ACCESSIONS NEEDED						SOURCES OF ACCESSIONS		
						REPLACE LOSSES						
CODE	OCCUPATION	CURRENT - June 24, 1977		PROJECTED - Sept. 1, 1978	EXPANSIONS TO MEET $200M WORKLOADS	SEPARATIONS	TRANSFERS OUT	TOTAL	TRANSFERS IN	NEW HIRES	TOTAL	TOTAL
		21		45	24*	5	5	34	5	29	34	
A	Section Chief	1		1								
B	Chief, Grants Mgmnt.	1		1								
C	Group Leader (PPM)	1		1								
D	Admin. Asst. II (PPM)			1	1			1		1	1	
E	Admin. Asst. I (PPM)			1	1			1		1	1	
F	Clerk II	1		3	2		1	3	1	2	3	
G	Clerk I	2		3	1	1	1	3		3	3	
H	Tech. Asst. II (PPM)	1		2	1	1		2		2	2	
I	Tech. Asst. I (PPM)			2	2			2	1	1	2	
J	State Loan Officer			1	1			1		1	1	
K	Group Leader (AM)	1		1								
L	Admin. Asst. II (AM)			1	1			1		1	1	
M	Admin. Asst. I (AM)			1	1			1		1	1	
N	Group Leader - (TM)	1		1								
O	Tech. Asst. II (TM)	1		2	1	1		2	1	1	2	
P	Tech. Asst. I (TM)	1		2	1		1	2		2	2	
Q	Archaeologist	1		1								
R	Admin/Qual. Control Coor.	1		1								
S	Chief Engineer			1	1			1	1		1	
T	Project Engineer	6		11	5	1	1	7		7	7	
U	Secretary II	1		4	3	1		4	1	3	4	
V	Secretary I	1		3	2		1	3		3	3	

*Three of these positions are needed to fill current vacancies in occupations L, S, and U.

APPENDIX M

STAFFING PLAN

STAFFING PLAN

Organization Construction Grants — Prepared by H. Voigt / T. Jackson

Time Period June 1, 1977-Sept. 1, 1979 — Date June 24, 1977

Funding Level $200M

Occupational Title	Code	Type	Pay Plan	Grade*	Planned Positions & Manyears					
					FY 77		FY 78		FY 79	
					Pos.	M.Y.	Pos.	M.Y.	Pos.	M.Y
Section Chief	A	P	S	21	1	1	1	1	1	1
Chief, Grants Management	B	P	S	20	1	1	1	1	1	1
Group Leader: (PPM)	C	P	S	17	1	1	1	1	1	1
Administrative Assistant II-(PPM)	D	P	S	12			1	.5	1	1
Administrative Assistant I-(PPM)	E	P	S	10			1	1	1	1
Clerk II	F	P	S	06	1	1	3	2	3	3
Clerk I	G	P	S	04	2	2	3	3	3	3
Technical Assistant II - (PPM)	H	P	S	14	1	1	2	1.5	2	2
Technical Assistant I - (PPM)	I	P	S	12			2	1.5	2	2
State Loan Officer	J	P	S	14			1	1	1	1
Group Leader: (AM)	K	P	S	16	1	1	1	1	1	1
Administrative Assistant II-(AM)	L	P	S	12	1	1	1	1	1	1
Administrative Assistant I-(AM)	M	P	S	08			1	.5	1	1
Group Leader: (TM)	N	P	S	19	1	1	1	1	1	1
Technical Assistant II - (TM)	O	P	S	18	1	1	2	1.5	2	2
Technical Assistant I - (TM)	P	P	S	15	1	1	2	1.5	2	2
Archaeologist	Q	P	S	13	1	1	1	1	1	1
Administrative/Quality Control Coordinator	R	P	S	18	1	1	1	1	1	1
Chief Engineer	S	P	S	20	1	1	1	1	1	1

*Maximum pay grade or group shown.

See Footnote 1 for salaries.

STAFFING PLAN

Organization Construction Grants Prepared by _____

Time Period _____ Date _____

Funding Level _____

Occupational Title	Code	Type	Pay Plan	Grade*	Planned Positions & Manyears					
					FY 77		FY 78		FY 79	
					Pos.	M.Y.	Pos.	M.Y.	Pos.	M.Y
Project Engineer	T	P	S	19	5	5	5	5	5	5
	T	IPA	IPA	19	1	1	1	1	1	1
	T	P	S	18			5	3.5	5	5
Secretary II	U	P	S	07	2	2	4	4	4	4
Secretary I	V	P	S	05	1	1	3	3	3	3
Total Permanent					23	23	44	38.5	44	44
Total Interagency Personnel Act					1	1	1	1	1	1
GRAND TOTAL					24	24	45	39.5	45	45

SALARIES

OCCUPATIONAL TITLE	CODE	Planned Positions and Salaries*					
		FY 77		FY 78		FY 79	
		POS.	Total Salaries	POS.	Total Salaries	POS.	Total Salaries
Section Chief	A	1		1		1	
Chief, Grants Management	B	1		1		1	
Group Leader: (PPM)	C	1		1		1	
Administrative Assistant II - (PPM)	D			1		1	
Administrative Assistant I - (PPM)	E			1		1	
Clerk II	F	1		3		3	
Clerk I	G	2		3		3	
Technical Assistant II - (PPM)	H	1		2		2	
Technical Assistant I - (PPM)	I			2		2	
State Loan Officer	J			1		1	
Group Leader - (AM)	K	1		1		1	
Administrative Assistant II - (AM)	L	1		1		1	
Administrative Assistant I - (AM)	M			1		1	
Group Leader - (TM)	N	1		1		1	
Technical Assistant II - (TM)	O	1		2		2	
Technical Assistant I - (TM)	P	1		2		2	
Archaeologist	Q	1		1		1	
Administrative/Quality Control Coordinator	R	1		1		1	
Chief Engineer	S	1		1		1	
Project Engineer	T	6		11		11	
Secretary II	U	2		4		4	
Secretary I	V	1		3		3	
TOTALS		24		45	$704,556	45	$728,076

*Salaries are calculated by multiplying the number of positions by the maximum pay grade or group for that position. Salaries for positions in existence prior to September 1, 1977, are figured at present pay step. Vacancies and positions created by staff expansion are figured at step 3 for pay group 12 and below and step 5 for those positions above pay group 12.

APPENDIX N

TRAINING CATALOG

CONSTRUCTION GRANTS SECTION

Relation of Applicable Training* Courses to Each Occupation

Prepared by H. Voigt, T. Jackson

Date 6-20-77

CODE	OCCUPATION	Accounting Orientation for Administrative & Secretarial Personnel	Advanced Wastewater Treatment	Advanced Water Pollution Control - Biological	Advanced Water Pollution Control - Physical-Chemical	Automatic Data Processing for Administrative Personnel	ADP Orientation for the User	Basic Management Functions	Basic Oral and Written Communications	Better Office Skills and Services	Concrete Construction Inspection	Construction Claims Preparation	Construction Contracts	Construction Quality Management	Controlling Water Pollution	Data Base Management Systems Concept	Effective Technical Presentations	Engineering Management	Environmental Protection Agency Construction Process	Environmental Protection Agency Short Course on Construction Grants	Executive Secretary Seminar	TOTAL
		3	4	2	3	7	9	4	12	1	1	2	8	3	11	4	4	4	5	19	1	
A	Section Chief				X							X	X				X	X				
B	Chief, Grants Management						X						X			X	X	X		X		
C	Group Leader-Program/Priority Mgmnt.						X	X	X							X				X		
D	Administrative Assistant II - PPM					X			X						X	X				X		
E	Administrative Assistant I - PPM					X			X						X	X				X		
F	Clerk II					X	X		X						X					X		
G	Clerk I					X	X		X						X					X		
H	Technical Assistant II - PPM	X					X		X						X					X		
I	Technical Assistant I - PPM	X					X		X						X					X		
J	State Loan Officer											X	X						X	X		
K	Group Leader - AM						X	X					X						X			
L	Administrative Assistant II - AM					X			X				X		X				X	X		
M	Administrative Assistant I - AM					X			X				X		X				X	X		
N	Group Leader - TM		X					X						X								
O	Technical Assistant II - TM		X																	X		
P	Technical Assistant I - TM								X				X		X					X		
Q	Archaeologist																			X		
R	Administrative/Quality Control Coord.	X				X		X	X					X					X	X		
S	Chief Engineer		X	X	X		X											X	X	X		
T	Project Engineer		X	X	X		X				X		X	X				X	X	X		
U	Secretary II									X					X					X	X	
V	Secretary I								X						X					X		

*Refer to the following training catalog for the source, duration, and cost of each training course.

CONSTRUCTION GRANTS SECTION

Relation of Applicable Training*
Courses to Each Occupation

Prepared by H. Voigt
T. Jackson

Date 6-20-77

CODE	OCCUPATION	General Inspection	Introduction to Supervision	Management Introduction to ADP	Mechanical Inspection	New Employee Orientation	Office Practices	Project Management	Project Management and Control Workshop	Resident Engineer's Course	Secretarial Techniques	Shorthand Refresher	Technical Writing for Engineers	Urban Stormwater Management Seminar	Value Engineering Study Workshop	Wastewater Treatment and Disposal	Water Pollution Engineering	Workshop in Environmental Assessment				TOTAL
	COURSE TITLE	2	3	3	1	15	1	3	4	1	1	1	5	1	1	6	4	3				
A	Section Chief												X									
B	Chief, Grants Management			X				X								X	X	X				
C	Group Leader-Program/Priority Mgmnt.		X	X					X													
D	Administrative Assistant II - PPM					X			X													
E	Administrative Assistant I - PPM					X			X													
F	Clerk II					X																
G	Clerk I					X																
H	Technical Assistant II - PPM					X																
I	Technical Assistant I - PPM					X																
J	State Loan Officer					X																
K	Group Leader - AM		X	X																		
L	Administrative Assistant II - AM					X																
M	Administrative Assistant I - AM					X																
N	Group Leader - TM		X										X			X	X					
O	Technical Assistant II - TM	X				X							X			X	X					
P	Technical Assistant I - TM					X										X						
Q	Archaeologist					X												X				
R	Administrative/Quality Control Coord.							X														
S	Chief Engineer							X					X			X						
T	Project Engineer	X			X	X			X	X			X	X	X	X	X	X				
U	Secretary II					X						X										
V	Secretary I					X	X				X											

*Refer to the following training catalog for the source, duration, and cost of each training course.

TRAINING CATALOG

ORGANIZATION CONSTRUCTION GRANTS TIME PERIOD FROM June, 1977 TO Sept., 1978

PREPARED BY H. Voigt, T. Jackson DATE June 20, 1977

COURSE TITLE	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
			TUITION	TRAVEL	PER DIEM	
1. Accounting Orientation for Administrative, Clerical, and Secretarial Positions	Civil Service Comm. Dallas	2	80	70	60	210
2. Advanced Wastewater Treatment	EPA/Texas A&M Dallas	5	0	70	120	190
3. Advanced Water Pollution Control-Biological	University of Texas at Austin	5	300	0	0	300
4. Advanced Water Pollution Control: Physical & Chemical Waste Treatment	University of Texas at Austin	5	275	0	0	275
5. Automatic Data Processing for Administrative, Clerical, and Secretarial Positions	Civil Service Comm. - Dallas	2	80	70	60	210
6. ADP Orientation for the User	Civil Service Comm. - Dallas	3	58	70	90	218
7. Basic Management Functions	Civil Service Comm. - Dallas	5	120	70	120	310
8. Basic Oral and Written Communications	Civil Service Comm. - Dallas	4	100	70	120	290
9. Better Office Skills & Services	Civil Service Comm. - Dallas	3	85	70	90	245
10. Concrete Construction Inspection	U.S. Corps of Engineers	5	0	200	160	360

*Per diem costs reflect increases recently authorized by the Texas Legislature ($30.00 per day in-state; $40.00 per day out-of-state). All travel costs are figured on the basis of air transportation.

APPENDIX O

TRAINING PLAN

TRAINING PLAN

ORGANIZATION Construction Grants TIME PERIOD FROM June, 1977 to Sept., 1978

PREPARED BY H. Voigt
T. Jackson DATE June 20, 1977

COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
Accounting Orientation for Administrative, Clerical, and Secretarial Positions	H	Technical Assistant II (PPM)	2	Civil Service Comm.-Dallas	2	80	70	60	420
Advanced Water Pollution Control: Biological	T	Project Engineer	1	UT at Austin	5	300	0	0	300
Advanced Water Pollution Control: Physical and Chemical Waste Treatment	A	Section Chief	1	UT at Austin	5	275	0	0	275
	N	Group Leader - (TM)	1						275
	O	Technical Assistant II (TM)	2						550
	S	Chief Engineer	1						275
	T	Project Engineer	3						825
Automatic Data Processing for Administrative, Clerical, and Secretarial Positions	F	Clerk II	3	Civil Service Comm.-Dallas	2	80	70	60	630
ADP Orientation for the User	I	Technical Assistant I (PPM)	1	Civil Service Comm.-Dallas	3	58	70	90	218
Basic Management Functions	K	Group Leader (AM)	1	Civil Service Comm.-Dallas	5	120	70	120	310

*Per diem costs reflect increases recently authorized by the Texas Legislature ($30.00 per day in-state; $40.00 per day out-of-state). All travel costs are figured on the basis of air transportation.

TRAINING PLAN

ORGANIZATION Construction Grants TIME PERIOD FROM _____ to _____

PREPARED BY _____ DATE _____

COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
Better Office Skills and Services	U	Secretary II	1	Civil Service Comm.-Dallas	3	85	70	90	245
Concrete Construction Inspection	T	Project Engineer	1	U.S. Corps of Engineers	5	0	200	160	360
Construction Contracts	B	Chief, Grants Management	1	Civil Service Comm.-Dallas	5	160	70	120	350
	J	State Loan Officer	1						350
	T	Project Engineer	1						350
Construction Quality Management	N	Group Leader - (TM)	1	U.S. Corps of Engineers	3	0	200	120	320
	R	Admin/Qual. Control Coordinator	1						320
	T	Project Engineer	2						640
Controlling Water Pollution	D	Admin. Asst. II (PPM)	1	TWQB	2	0	0	0	0
	E	Admin. Asst. I (PPM)	1						0
	F	Clerk II	2						0
	G	Clerk I	3						0
	H	Tech. Asst. II (PPM)	2						0
	I	Tech. Asst. I (PPM)	1						0
	L	Admin. Asst. II (AM)	1						0

64

80

81

TRAINING PLAN

ORGANIZATION Construction Grants TIME PERIOD FROM _____ to _____

PREPARED BY _____ DATE _____

COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
Controlling Water Pollution (Cont.)	M	Admin. Asst. I (AM)	1						0
	O	Tech. Asst. II (TM)	1						0
	P	Tech. Asst. I (TM)	2						0
	U	Secretary II	3						0
	V	Secretary I	3						0
Data Base Management Systems Concept	C	Group Leader (PPM)	1	Civil Service Comm.-Dallas	3	125	70	90	285
Effective Technical Presentations	A	Section Chief	1	TWQB	3 (7 weeks)	0	0	0	0
	S	Chief Engineer	1						0
	T	Project Engineer	1						0
EPA Construction Grants Procurement Process Workshop	K	Group Leader (AM)	1	American Consulting Engineer's Council-Denver	1	15	168	80	263
EPA Workshop on Construction Grants	D	Admin. Asst. II (PPM)	1	EPA - Austin	4	0	0	0	0
	E	Admin. Asst. I (PPM)	1						0
	F	Clerk II	2						0
	H	Tech. Asst. II (PPM)	2						0
	I	Tech. Asst. I (PPM)	1						0
	J	State Loan Officer	1						0

TRAINING PLAN

ORGANIZATION Construction Grants TIME PERIOD FROM _____ to _____

PREPARED BY _____ DATE _____

COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
EPA Workshop on Construction Grants (Cont.)	L	Admin. Asst. II (AM)	1						0
	M	Admin. Asst. I (AM)	1						0
	O	Tech. Asst. II (TM)	1						0
	P	Tech. Asst. I (TM)	2						0
	R	Admin/Qual. Control Coordinator	1						0
	T	Project Engineer	7						0
	U	Secretary II	3						0
	V	Secretary I	3						0
Executive Secretary Seminar	U	Secretary II	1	Civil Service Comm.-Dallas	3	95	70	90	255
General Inspection	O	Tech. Asst. II (TM)	3	U.S. Corps of Engineers	5	0	200	160	1080
	T	Project Engineer	1						360
Mechanical Inspection	T	Project Engineer	1	U.S. Corps of Engineers	5	0	200	160	360
New Employee Orientation	D	Admin. Asst. II (PPM)	1	TWQB	1	0	0	0	0
	E	Admin. Asst. I (PPM)	1						0
	F	Clerk II	2						0
	G	Clerk I	3						0

99

84

85

TRAINING PLAN

ORGANIZATION Construction Grants TIME PERIOD FROM _____ to _____

PREPARED BY _____ DATE _____

COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
New Employee Orientation (Cont.)	H	Tech. Asst. II (PPM)	2						0
	I	Tech. Asst. I (PPM)	1						0
	J	State Loan Officer	1						0
	L	Admin. Asst. II (AM)	1						0
	M	Admin. Asst. I (AM)	1						0
	O	Tech. Asst. II (TM)	1						0
	P	Tech. Asst. I (TM)	2						0
	T	Project Engineer	7						0
	U	Secretary II	3						0
	V	Secretary I	3						0
Project Management	R	Admin/Quality Control Coordinator	1	Southern Methodist Univ. Dallas	3	345	70	90	505
Project Management and Control Workshop	C	Group Leader (PPM)	1	Civil Service Comm.-Dallas	3	125	70	90	285
	T	Project Engineer	2						570
Resident Engineer's Course	T	Project Engineer	1	U.S. Corps of Engineers	5	0	200	160	360
Urban Stormwater Management Seminar	T	Project Engineer	1	EPA - Denver	3	0	168	120	288

TRAINING PLAN

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COURSE TITLE	CODE	OCCUPATION	Number to be Trained	SOURCE OF TRAINING	DURATION OF TRAINING (DAYS)	COST OF TRAINING PER STUDENT			TOTAL TRAINING COST
						TUITION	TRAVEL	PER DIEM	
Value Engineering Study Workshop	T	Project Engineer	2	U.S. Corps of Engineers	5	0	200	160	720
Workshop in Environmental Assessment	Q	Archaeologist	1	Civil Service Comm.-Dallas	3	140	70	90	300
							TOTAL		$12,644

89

88

89